Claims:

1. An apparatus comprising:
   a subsurface logging apparatus; and
   a plurality of gravity sensors coupled to the subsurface logging apparatus, the sensors being spaced a known distance apart to form a gravity sensor array.

2. The apparatus of claim 1, the logging apparatus comprising a logging sonde, coil tubing, or wireline.

3. The apparatus of claim 1, where a sensor drift associated with one gravity sensor is time-correlated with a sensor drift of another gravity sensor.

4. The apparatus of claim 3, where sensor drifts of all the gravity sensors are time-correlated with one another.

5. The apparatus of claim 1, further comprising sensor hardware or software configured to correct sensor drift of one or more of the gravity sensors.

6. The apparatus of claim 1, where different gravity sensors are spaced at different distances from one another.

7. The apparatus of claim 1, where the array is a linear, vertical array.

8. A method of logging using multiple gravity sensors, comprising:
   spacing gravity sensors a known distance apart to form a gravity sensor array;
   placing the gravity sensor array into a subsurface; and
   using the gravity sensor array to make gravity measurements of the subsurface.

9. The method of claim 8, where the gravity sensors make gravity measurements simultaneously.

10. A method comprising:

calculating an apparent density; and

plotting the apparent density as a function of position and gravity point separation to form a density pseudosection, the density pseudosection indicating how the apparent density varies with location down a well and horizontal distance away from the well.

11. The method of claim 10, further comprising forming contour lines associated with the apparent density.

12. An apparatus comprising a gravity sensor coupled to a drilling device, the sensor being configured to make a subsurface gravity measurement after the drilling device begins drilling a hole but before the hole is completed, at a time during which the drilling device is temporarily halted.

13. The apparatus of claim 12, the gravity sensor being coupled to an instrument package.

14. The apparatus of claim 13, the instrument package being coupled to a drilling pipe, which is coupled to a drill bit.

15. The apparatus of claim 12, the sensor being configured to make a subsurface gravity measurement when a drilling pipe is added to a drill string.

16. The apparatus of claim 12, the gravity sensor being spaced a known distance from one or more other gravity sensors to form a gravity sensor array.

17. The apparatus of claim 12, the gravity sensor comprising a metal zero-length spring gravity sensor.

18. The apparatus of claim 12, the gravity sensor comprising a clamping mechanism configured to withstand vibrations due to drilling.

19. A method comprising:

coupling a gravity sensor to a drilling device;

drilling a hole using the drilling device;

temporarily halting drilling;

making a gravity measurement using the gravity sensor while drilling is temporarily halted; and

resuming drilling of the hole.

20. The method of claim 19, further comprising using the gravity measurement to steer the drilling device.

21. The method of claim 20, further comprising using the gravity measurement to steer the drilling device into and out of salt structures.

22. The method of claim 20, further comprising using the gravity measurement to steer the drilling device into porous structures.

23. The method of claim 20, further comprising using the gravity measurement to steer the drilling device into compartments formed by up-thrown or down-thrown faulted blocks.

24. The method of claim 20, further comprising using the gravity measurement to steer the drilling device into or around man-made structures.

25. The method of claim 19, further comprising using the gravity measurement to verify a course of the drilling device.

26. The method of claim 19, the hole comprising a well.

27. The method of claim 19, further comprising using the gravity measurement to locate porosity.

28. The method of claim 19, further comprising using the gravity measurement to profile a salt interface.

29. The method of claim 19, further comprising using the gravity measurement to log carbonate units.

30. The method of claim 19, further comprising using the gravity measurement to detect fractures.

31. The method of claim 19, further comprising using the gravity measurement to determine reef proximity.

32. The method of claim 19, further comprising using the gravity measurement to detect fluid contacts.

33. The method of claim 19, further comprising using the gravity measurement to delineate lateral facies changes.

34. The method of claim 19, further comprising using the gravity measurement to determine a drill hole position.

35. The method of claim 34, the drill hole position comprising an optimized drill hole position relative to a fluid, geological, or man-made contact.

36. A method comprising steering a drill bit using gravity measurements made while drilling.

37. The method of claim 36, further comprising comparing the gravity measurements with modeled gravity.

38. The method of claim 37, the modeled gravity comprising a subsurface gravity map.

39. A method for steering a drill bit, comprising:

providing a geological model of the ground;

performing a gravity calculation based on the geological model;

creating a subsurface gravity map of the ground based on the gravity calculation; and

using the subsurface gravity map to steer a drill bit.

40. The method of claim 39, where using the subsurface gravity map to steer a drill bit comprises:

making a gravity measurement during a temporary halt of drilling;

using the gravity measurement and the subsurface gravity map to define a drilling course; and

sending the drilling course to a drilling guidance system.

41. The method of claim 40, further comprising using a geological model to define the drilling course.